UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8960

SEP 19 2017

Mr. Thomas Frick
Director
Division of Environmental Assessment & Restoration
Florida Department of Environmental Protection
Mail Station 3000
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Frick:

The U.S. Environmental Protection Agency has completed its review of the numeric interpretation of the state narrative nutrient criteria (NNC) for total nitrogen (TN) and total phosphorus (TP) in Lake Bonny (WBID 1497E). The Florida Department of Environmental Protection (FDEP) submitted the Lake Bonny Total Maximum Daily Load (TMDL) (WBID 1497E) and revised Chapter 62-304, Florida Administrative Code (F.A.C.) including the NNC for the subject water, to the EPA on June 30, 2015, as a TMDL and as new or revised water quality standards (WQS) with the necessary supporting documentation and certification by the FDEP General Counsel, pursuant to 40 CFR Part 131. The NNC were adopted under Chapter 62-304.625(13) as site specific numeric interpretations of paragraph 62-302.530(47), F.A.C., as referenced in paragraph 62-302.531(2)(a), F.A.C. The FDEP intends for the submitted NNC to serve in place of the otherwise, applicable criteria for lakes set out in paragraph 62-302.531(2)(b), F.A.C.

The FDEP submitted the Lake Bonny TMDL (WBID 1497E) to the EPA for review pursuant to both CWA Sections 303(c) and 303(d) since the TMDLs will also act as a Hierarchy 1 (H1) site-specific interpretation of the state's narrative nutrient criteria pursuant to 62-302.531(2)(a)1.a. The EPA acknowledges that by virtue of establishing the TMDL in Chapter 62-304, F.A.C., the FDEP is also establishing an H1 interpretation of the narrative nutrient criteria for this waterbody as new or revised WQS. The enclosed, combined WQS and TMDL decision documents summarize the EPA's review and approval of the WQS and TMDL.

In accordance with Sections 303(c) and (d) of the Clean Water Act, I am hereby approving the TMDL promulgated in Chapter 62-304, F.A.C for Lake Bonny (WBID 1497E) as both a TMDL and as revised WQS for total nitrogen (TN) and total phosphorus (TP). Any other criteria applicable to these waterbodies remain in effect, especially those related to chlorophyll *a* in paragraph 62-302.531(2)(b)1., and including other applicable criteria at 62-302.531(2)(b). The requirements of paragraph 62-302.530(47)(a), F.A.C. also remain applicable.

If you have any comments or questions relating to the approval of the H1 WQS or TMDL, please contact me at (404) 562-9469, or have a member of your staff contact Dr. Katherine Snyder in the WQS program at (404) 562-9840 or Ms. Laila Hudda of the TMDL program at (404) 562-9007.

Sincerely,

Mary S. Walker
Director
Water Protection Division

cc: Mr. Kenneth Hayman, FDEP
Ms. Stacey Cowley, FDEP
Mr. Daryll Joyner, FDEP
Ms. Erin Rasnake, FDEP

Enclosure

Florida Numeric Interpretation of the Narrative Nutrient Water Quality Criteria through a TMDL to establish a Hierarchy 1 (H1): Joint Water Quality Standards and TMDL Decision Document

Summary Waterbody Information

TMDL Document Name: Nutrient TMDL Report for Lake Bonny (WBID 1497E)	**County: Polk County**
Reviewer(s): Laila Hudda, Simona Platukyte	**Date of Submittal:** June 30, 2015 (Final TMDL March 2015); September 27, 2016 (Revised Final TMDL September 2016)
Use Classification: Class III Freshwater	**WBID/HUC:** 1497E
Waterbody Type: Lake	**Type of TMDL(Point / Nonpoint /Both):** Both
Pollutant(s) addressed: Total Nitrogen (TN) Total Phosphorus (TP)	**ESA/EJ Issues:** None

Criteria Parameter(s) (magnitude, duration, and frequency):

TN = 0.89 mg/L, expressed as an annual geometric mean lake concentration not to be exceeded in any year;
TP = 0.04 mg/L, expressed as an annual geometric mean lake concentration not to be exceeded in any year.

Additional National TMDL Tracking System Entry Parameters

TMDL doc ID: 64445	**EPA Developed?** No	**TMDL Target:** A 64 % reduction in TN & 60% reduction in TP is required from nonpoint and NPDES stormwater sources in order to meet the TMDL of 0.89 mg/L TN and 0.04 mg/L TP for Lake Bonny (WBID 1497E).
303(d) List ID: 1497E	**Lead State:** Florida	
303(d) List Cycle (Yr): 1997-2004(Cycle 1), 2002-2009 (Cycle 2)	**Pollutant ID:** TN, TP	

Description of Waters Addressed By H1 Criteria/TMDL:

Lake Bonny is located inside the City of Lakeland, Polk County, Florida. The surface area of the lake is 249 acres and includes Little Lake Bonny, a small, once isolated seepage lake located along the southeastern part of the lake. The lake's watershed encompasses 1,197 acres. The average lake volume is 3.9×10^8 gallons. The average depth of the lake is 3.0 ft., with a maximum depth of 11.2 ft. The lake outlet is connected to Lake Parker, which flows into upper Saddle Creek, that in turn drains to Lake Hancock. Lake Hancock discharges to lower Saddle Creek, which along with the Peace Creek Drainage Canal, makes up the headwaters of the Peace River.

The center of Lake Bonny is located at N: 28° 2'20"/ W: -81° 55'30". The site specific criteria apply as a spatial average for the lake, as defined by WBID 1497E.

Lake Bonny was initially verified as impaired during the Cycle 1 assessment (the verified period was January 1, 1997, to June 30, 2004) due to excessive nutrients because the Trophic State Index (TSI) threshold of 60 was exceeded using the methodology in the Identification of Impaired Surface Waters Rule (IWR) (Chapter 62-303, F.A.C.). As a result, the lake was included on the Cycle 1 Verified List of impaired waters for the Sarasota Bay-Peace River-Myakka River Basin that was adopted by Secretarial Order on June 17, 2005. During the Cycle 2 assessment (verified period of January 1, 2002, to June 30, 2009), the impairment for nutrients was documented as continuing, as the TSI threshold of 60 was exceeded.

Based on an analysis of the data from 2002 to 2012 in IWR Database Run 48, the results indicate that Lake Bonny would not attain the default lake NNC for chlorophyll a, TN, and TP for low color, high alkalinity lakes, and thus remains impaired for nutrients.

Water Quality Standards Decision Document
Supporting Rationale and Conclusions

Section 303(c) of the Clean Water Act (CWA) and EPA's implementing regulations at 40 CFR §131 describe the statutory and regulatory requirements for approvable Water Quality Standards. The following information is the minimum requirements for water quality standards submissions and are necessary for the EPA to determine if a submitted water quality standard fulfills the legal requirements for approval under §303(c) and the EPA regulations.

Use Designations

Requirement: §131.10(a) Each State must specify appropriate water uses to be achieved and protected. The classification of the waters of the State must take into consideration the use and value of water for public water supplies, protection and propagation of fish, shellfish and wildlife, recreation in and on the water, agricultural, industrial, and other purposes including navigation. In no case shall a State adopt waste transport or waste assimilation as a designated use for any waters of the United States.

Conclusion:

Lake Bonny is classified as: Class III Freshwater (recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife).

Protection of Downstream Uses

Requirement: §131.10(b) In designating uses of a water body and the appropriate criteria for those uses, the State shall take into consideration the water quality standards of downstream waters and shall ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters.

Conclusion:

Lake Parker and Saddle Creek are the nearest downstream waters to Lake Bonny. The Lake Bonny watershed comprises only 8 percent of the Lake Parker basin area. The existing Lake Bonny watershed TN and TP loads are only 9 percent and 7 percent, respectively, of the Lake Parker basin total nutrient loadings.

The Lake Bonny nutrient concentration targets of 0.89 mg/L for TN and 0.04 mg/L for TP are less than the West Central Nutrient Watershed Region thresholds of 1.65 mg/L for TN and 0.49 mg/L for TP that are applicable to Saddle Creek. The West Central Nutrient Watershed Region stream thresholds, expressed as annual geometric means, may be exceeded once in a three year period and are higher than the annual geometric mean lake TMDL nutrient targets. Since the TMDL nutrient targets are lower than the stream nutrient thresholds for the area and are expressed as a frequency of "not to be exceeded in any year" the TMDL targets are considered to be protective of the applicable stream thresholds.

The reductions in nutrient concentrations prescribed in the TMDL are not expected to cause nutrient impairments downstream and are expected to result in water quality improvements to downstream waters.

Water Quality Criteria

Requirement: §131.11(a) Inclusion of pollutants: (1) States must adopt those water quality criteria that protect the designated use. Such criteria must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use. For waters with multiple use designations, the criteria shall support the most sensitive use.

Conclusion:

The nutrient criteria for Lake Bonny are the total nitrogen (TN) and total phosphorus (TP) targets established in the nutrient TMDL for the Lake. Those targets are an annual in-lake geometric mean concentration of 0.89 mg/L TN and 0.04 mg/L TP. Rule 62-304.625(13), F.A.C.

Any other criteria applicable to this waterbody, remain in effect, including the nutrient criteria for parameters other than total nitrogen and total phosphorus set out in Rule 62-302.531(b), F.A.C.

Scientific Defensibility

Requirement: §131.11(b) Form of criteria: In establishing criteria, States should: (1) Establish numerical values based on:
(i) 304(a) Guidance; or (ii) 304(a) Guidance modified to reflect site-specific conditions; or (iii) Other scientifically defensible methods

Conclusion:

Lake Bonny is low color (≤ 40 Platinum Cobalt Units) and high alkalinity (> 20 mg/L CaCO3), and the default NNC, which are expressed as Annual Geometric Mean (AGM) concentrations not to be exceeded more than once in any three year period, are chlorophyll *a* of 20 µg/L, total nitrogen (TN) of 1.05 mg/L – 1.91 mg/L, and total phosphorus (TP) of 0.03 mg/L – 0.09 mg/L, which are consistent with the requirements of paragraph 62-302.531(2)(b)l., F.A.C.

A chlorophyll *a* value of 20 µg/L was selected as the response variable target for use in establishing the total nitrogen and total phosphorus criteria. This target is based on information in the Department's 2012 document titled, *Technical Support Document: Development of Numeric Nutrient Criteria for Florida Lakes, Spring Vents and Streams*, which demonstrates a chlorophyll *a* threshold of 20 µg/L is protective of designated uses for low color, high alkalinity lakes.

The method utilized to address the nutrient impairment is a regression equation that relates the lake TN concentrations to the annual geometric mean chlorophyll *a* levels, using data from the 1999-2012 period. The primary dataset for this period is the IWR Run 48 database.

A similar analysis was performed for TP which designated a value 0.02 mg/L as a target protective of chlorophyll *a*, however, this value is lower than the pre-disturbance condition. The pre-disturbance condition was established by examining a paleolimnological study[1] of Lake Bonny which showed that historic TP concentrations ranged from 0.032 – 0.043 mg/L with corresponding chlorophyll *a* concentrations in the 0.01-0.015 mg/L range. Thus, the FDEP chose a concentration of 0.043 mg/L TP to be protective of the 0.02 mg/L chlorophyll *a* target. The target chosen from the paleolimnological study was then mathematically transformed to an equivalent geometric mean value, which resulted in the final TP target of 0.04 mg/L.

The criteria are expressed as annual geometric mean concentrations, not to be exceeded in any year. Establishing the frequency as not to be exceeded in any year ensures that the chlorophyll *a* NNC, which is protective of the designated use, is achieved. The water quality results applied in the analysis spanned the 1999 - 2012 period, which included both wet and dry years. The annual average rainfall for 1999-2012 was 48.2 inches/year. The years 2000, 2006, and 2007 were dry years, 2009 to 2011 were average years, and 2002, 2004, and 2005 were wet years.

Furthermore, the FDEP also submitted an additional analysis which employed a multiple regression model to demonstrate that the chosen nutrient targets would not exceed that chlorophyll *a* criterion. This analysis used water quality data from the 1999 to 2014 period.

The EPA determined that the selection of a chlorophyll *a* value of 20 µg/L as the response variable target is appropriate and the linear regression method used by the State to determine a total nitrogen value that corresponds to the response variable target, is an appropriate and defensible method addressed by this approval action. This approach is further supported by the above-cited document, provided by the State. The paleolimnological approach to determining pre-disturbance values of TP and chlorophyll *a* was commissioned by FDEP and performed by an accredited academic institution. This approach has been used in Florida's lakes for studying pre-disturbance conditions and the resulting data were used in the NNC development and cited in the *Technical Support Document*, however it should be noted that a limitation of this approach is the lack of corresponding TN pre-disturbance concentration values. A review of the FDEP's multiple regression model showed that the Lake Bonny multiple linear regression model proposed by the FDEP meets all typical regression requirements and is acceptable for use.

[1] Whitmore, T.J., and M. Brenner. 2002. *Paleolimnological Characterization of Pre-disturbance Water Quality Conditions in EPA-Defined Florida Lake Regions.* Final Report to the Florida Department of Environmental Protection. Gainesville, Florida: University of Florida, Department of Fisheries and Aquatic Sciences.

Public Participation

Requirement: §131.20(b) Public participation. The State shall hold a public hearing for the purpose of reviewing water quality standards, in accordance with provisions of State law, in accordance with State law and EPA's public participation regulation (40 CFR part 25). The proposed water quality standards revision and supporting analyses shall be made available to the public prior to the hearing.
Conclusion:

A public workshop was conducted by the Department on March 26, 2014 in Bartow, Florida to obtain comments on the draft nutrient TMDLs for four lakes in the Peace River Basin, including Lake Bonny. The workshop notice indicated that these nutrient TMDLs, if adopted, constitute site specific numeric interpretations of the narrative nutrient criterion set forth in paragraph 62-302.530(47)(b), F.A.C., that would replace the otherwise applicable numeric nutrient criteria in subsection 62-302.531(2) for these particular waters, upon paragraph 62-302.531(2)(a), F.A.C., becoming effective.

Certification by the State Attorney General

Requirement: §131.6(e) Certification by the State Attorney General or other appropriate legal authority within the State that the water quality standards were duly adopted pursuant to State law.
Conclusion:

Letter from FDEP General Counsel, Craig Varn, dated June 30, 2015 certified that the Lake Bonny TMDL was duly adopted as water quality standard pursuant to state law.

Endangered Species Section 7 Consultation

Requirement: §7(a)(2) of the Endangered Species Act requires federal agencies, in consultation with the Services to ensure that their actions are not likely to jeopardize the continued existence of federally listed species or result in the destruction or adverse modification of designated critical habitat of such species.
Conclusion:

A programmatic letter of concurrence between U.S. EPA and U.S. FWS, dated July 21, 2015, serves as completion of the Endangered Species Act Section 7 consultation for this action. The programmatic letter of concurrence applies to any site specific numeric interpretations of the narrative nutrient criterion that are equal to or lower than the generally applicable numeric nutrient criteria in subsection 62-302.531(2) for these particular waters.

Final Recommendation/Conclusion

Based on the chemical, physical and biological data presented in the development of the H1 NNC outlined above, the EPA concludes that all of the aforementioned H1 NNC provide for and protect healthy, well-balanced, biological communities in the waters to which the NNC apply and are consistent with the CWA and its implementing regulations. More specifically, the NNC are consistent with both 40 CFR 131.11(b)(1)(ii), and the EPA's 304(a) guidance on nutrient criteria. In accordance with section 303(c) of the CWA, the H1 NNC addressed by this decision document are hereby approved as consistent with the CWA and 40 CFR part 131. Therefore, the revised nutrient criteria for Lake Bonny are 0.89 mg/L for TN and 0.04 mg/L for TP, expressed as an annual geometric mean in-lake concentrations. The TMDL document also provides that the geometric mean is not be exceeded in any year. All other criteria applicable to this waterbody remain in effect, including other applicable criteria at 62-302.531(2)(b) [or(c)] . The requirements of paragraph 62-302.530(47)(a), F.A.C. also remain applicable.

TMDL Review Checklist Supporting Rationale and Comments

Section 303(d) of the Clean Water Act (CWA) and EPA's implementing regulations at 40 CFR §130 describe the statutory and regulatory requirements for approvable TMDLs. The following information is generally necessary for the EPA to determine if a submitted TMDL fulfills the legal requirements for approval under §303(d) and the EPA regulations. When the information listed below uses the verb *"must"* or "require," this denotes information that is needed by the EPA to review elements of the TMDL required by the CWA and by regulation.

Submittal Letter

Considerations:

- **Each final TMDL submitted to EPA should be accompanied by a submittal letter that explicitly states that the submittal is a final TMDL submitted under §303(d) of the Clean Water Act for EPA review and approval.** This clearly establishes the State/Tribe's intent to submit, and EPA's duty to review, the TMDL under the statute.

Conclusions:

Accompanying the State's (March 2015) final TMDL for nutrients is a submittal letter dated June 30, 2015 from Craig Varn General Counsel, FDEP which states, "The Florida Department of Environmental Protection ("DEP") is submitting the enclosed nutrient TMDLs ("TMDLs") to the Environmental Protection Agency for review and approval in accordance with Sections 303(c) and 303(d) of the Clean Water Act. The submitted nutrient TMDLs are for Lake Bonny, Lake Hollingsworth, Lake Lena, and Lake Deer, and have been adopted in Rules 62-304.625(13)-(16), Florida Administrative Code ("F.A.C."). Under paragraph 62-302.531 (2)(a), F.A.C., these TMDLs were established as site specific numeric interpretations of the narrative nutrient criterion set forth in paragraph 62-302.530(47)(b), F.A.C. Thus, the submittal letter clearly establishes the Agency's duty to review the State's nutrients TMDLs submittal under 303(d) of the Clean Water Act. DEP submitted a revised Final TMDL document (September 2016) on September 27, 2016 which EPA is acting on in this Decision Document.

Scope of TMDL

Considerations:

- **The TMDL should describe the waterbody as it is identified on the State/Tribe's §303(d) list, the pollutant(s) of concern, and the applicable water quality criteria that led to impairment listing.** The waters addressed by the TMDL must be identified and consistent with the 303(d) list.
- The TMDL should include a statistical evaluation of all readily available data that was used to place the waterbody on the 303(d) list.
- The TMDL submittal must include a description of the point, nonpoint, and natural background (where possible) sources of the pollutant of concern. **Such information is necessary for EPA's review of the load and wasteload allocations, which are required by regulation. The TMDL submittal should also contain a description of any important factors, such as: (1) the assumed distribution of land use in the watershed; (2) population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation, as applicable; and (3) present and future growth trends, if this is a factor that was taken into consideration in preparing the TMDL.**

Conclusions:

The TMDL report addresses a Section 303(d) listed waterbody Lake Bonny, waterbody identification (WBID) number 1497E. The waterbody is described in Section 1.2 and pollutant(s) of concern and the applicable water quality criteria that led to impairment listing is in Section 2.2
Florida's Impaired Waters Rule (IWR) requires the State to "assemble and evaluate" data in order to prepare for the development of the State's section 303(d) list. Florida has an extensive monitoring network and a robust data collection that is managed and compiled into Florida's IWR database. This database is used to determine if waterbodies are meeting their designated use and if a TMDL is needed. All data presented in this report are from IWR Run 48.
The TMDL report describes the source categories, subcategories, or individual sources of nutrients in the watershed. The wasteload allocation and the load allocation are displayed in Table 6.1 of the TMDL report. Within the TMDL report, the pertinent background information is included in the text, tables and figures. Chapter 4 of the TMDL report discusses the source assessment for the waterbodies. Section 4.2 discusses the point sources in the watershed. Section 4.2.2 discusses the MS4 permittees in the watershed. Section 4.3 discusses the Land Uses and Nonpoint sources of nutrients. Table 4.1 reports the land use categories in the watershed. "Land use is predominately urban, with approximately 40 percent of the land area developed into medium and high density residential areas. Other urban areas include institutional land use (8.6 percent), the largest area being Southeastern University property, and recreational land use (4.4 percent). Surface waters and wetlands combined cover 33 percent of the watershed, with wetlands, located primarily along the west shore of the lake, representing approximately 13 percent of the area.

Loading Capacity

Considerations:

- The EPA regulations define loading capacity as the greatest amount of loading that a water can receive without violating water quality standards [40 CFR §130.2(f)]. The loadings are required to be expressed as either mass-per-time, toxicity or other appropriate measure [40 CFR § 130.2(i)]. **The TMDL submittal must identify the waterbody's loading capacity for the applicable pollutant. To the degree it is known, it should also describe the cause and effect relationship between the identified pollutant sources, the numeric target (narrative target if appropriate), and achievement of water quality standards.**
- **Supporting documentation for the TMDL analysis must also be contained in the submittal. This should include a description of the analytical process used, results from water quality modeling, assumptions, etc.** The TMDL submittal should also contain a description of other important factors, such as an explanation and analytical basis for expressing the TMDL through surrogate measures, if applicable.
- **Critical conditions must be considered as part of the analysis of loading capacity [40 CFR § 130.7(c)(1)].** Critical conditions are the combination of environmental factors (e.g., flow, temperature, etc.) that result in attaining and maintaining the water quality criterion and have an acceptably low frequency of occurrence. Critical conditions are important because they describe the factors that combine to cause a violation of water quality standards and will help in identifying the actions that may have to be undertaken to meet water quality standards.

Conclusions:

The linkage between water quality and pollutant sources can be found in Chapters 3 and 5 of the TMDL report as shown below.

3.2 Numeric Interpretation of Narrative Nutrient Criterion

"The development of the lake NNC are based on an evaluation of a response variable (chlorophyll *a*) and stressor variables (nitrogen and phosphorus) to develop water quality thresholds that are protective of designated uses (Florida DEP, 2012). Based on several lines of evidence, the DEP developed a chlorophyll *a* threshold of 20 µg/L for colored lakes (above 40 PCU) and clear lakes with alkalinity above 20 mg/L CaCO3. Since the Department has demonstrated that the chlorophyll *a* threshold of 20 µg/L is protective of designated uses, this value will be used as a water quality target for TMDL development to address the nutrient impairment of Lake Bonny. Empirical equations that describe the relationships between chlorophyll *a* and nutrient concentrations in Lake Bonny were used in the TMDL development approach, which is explained in detail in Chapter 5 of the TMDL report"

5.1 Determination of Loading Capacity
The TMDL development process identifies nutrient target concentrations and nutrient reductions for Lake Bonny in order for the waterbody to achieve the applicable nutrient water quality criteria, and maintain its function and designated use as a Class III fresh water. The methods utilized to address the nutrient impairment included the development of regression equations that relate lake nutrient concentrations to the annual geometric mean chlorophyll *a* levels. For addressing nonpoint sources (both NPDES stormwater discharges and non-NPDES stormwater

discharges), the TMDLs are expressed as percent reductions in the existing lake water total nitrogen concentrations necessary to meet the applicable chlorophyll *a* target

5.3 The TMDL Development Process

The method used for developing the nutrient TMDLs is a percent reduction approach, whereby the percent reductions in the existing lake TN and TP concentrations were calculated to meet the nutrient water quality targets. As discussed in Chapter 3, the NNC chlorophyll a threshold of 20 µg/L, expressed as an annual geometric mean, was selected as the response variable target for TMDL development. To identify the TN water quality target, the regression equation explaining the relationship between annual geometric mean chlorophyll a and TN, Figure 5.4, was used to determine the TN concentration necessary to meet the chlorophyll a target of 20 µg/L. An annual TN geometric mean of 0.89 mg/L results in a chlorophyll a annual geometric mean of 20 µg/L. The TP water quality target was derived in a different fashion to take into consideration the pre-disturbance inferred water quality from a paleolimnological study (Whitmore and Brenner, 2002). Although a significant relationship was found between annual geometric mean chlorophyll a and TP, Figure 5.5, the predicted TP concentration necessary to achieve the chlorophyll a target of 20 µg/L, using the regression equation, is less than the TP results obtained from the paleolimnological study. The study estimated pre-disturbance average TP levels by applying two statistical models, which equates to pre-disturbance conditions, were 32 µg/L and 43 µg/L, Table 5.2. Using the regression equation, a TP concentration of 25 µg/L results in a chlorophyll a concentration of 20 µg/L. As Florida regulations prevent the abatement of natural conditions, an alternative method was used to identify the TP target. The higher value in the TP range from the paleolimnological results, 43 µg/L, was selected as the TP target. For TMDL development, a TP value of 40 µg/L expressed as a geometric mean is being applied as a water quality target".

"A multiple regression model, that relates TN and TP concentrations to chlorophyll a concentrations in Lake Bonny, presented in Appendix F of the TMDL document, was used to provide further evidence to support that the selected nutrient targets can achieve the chlorophyll a target of 20 µg/L"

"Existing lake nutrient conditions used in establishing the TMDLs were the conditions measured in the 2002-2012 period. This period includes the entire Cycle 2 verified period and water quality in more recent years. The existing nutrient conditions used in the percent reduction calculation are the median values of the TN and TP annual geometric means that exceed the water quality targets as is presented in Table 5.3. The geometric means were calculated from nutrient results available in IWR Database Run 48. The equation used to calculate the percent reduction is as follows:

$$\frac{\text{[measured exceedance – target]}}{\text{measured exceedance}} \times 100$$

For the existing geometric mean TN concentration of 2.46 mg/L to achieve the target concentration of 0.89 mg/L, a 64 percent reduction in the lake TN concentration is necessary. A 60 percent reduction in the existing annual geometric mean TP concentration of 0.10 mg/L is necessary to meet the target concentration of 0.04 mg/L"

Chapter 5.4 of the TMDL report also discusses critical conditions.
"The estimated assimilative capacity is based on annual conditions, rather than critical/seasonal conditions because (a) the methodology used to determine the assimilative capacity does not lend itself very well to short-term assessments, (b) the Department is generally more concerned with the net change in overall primary productivity in the segment, which is better addressed on an annual basis, and (c) the methodology used to determine impairment is based on annual conditions (annual geometric means or arithmetic means)".

Wasteload Allocations (WLAs)

Considerations:

- **The EPA regulations require that a TMDL include WLAs, which identify the portion of the loading capacity allocated to existing and future point sources [40 CFR §130.2(h)].**
- **Wasteload allocations must be assigned to each point source discharging the pollutant of concern [40 CFR 130.2(i)]. WLAs can be expressed as lumped or aggregate allocations if appropriate.**
- **If no point sources are present or if the TMDL recommends a zero WLA for point sources, the WLA must be expressed as zero.**
- **The wasteload allocations should be sufficient, in consideration of nonpoint source loads, to ensure that the point sources will not cause or contribute to excursions of water quality standards [40 CFR §122.44(d)(1)].**

Conclusions:

Polk County and Co- Permittees (FDOT District 1 and the City of Lakeland) are covered by a Phase I NPDES municipal separate storm sewer system (MS4) permit (FLS000015) and areas within their jurisdiction in the Lake Bonny watershed may be responsible for a 64 percent total nitrogen reduction and 60 percent total phosphorous reduction in current anthropogenic loading. It should be noted that any MS4 permittee is only responsible for reducing the anthropogenic loads associated with stormwater outfalls that it owns or otherwise has responsible control over, and it is not responsible for reducing other nonpoint source loads in its jurisdiction.

"As noted in Chapter 4, Section 4.2.1 of the TMDL report, there are no active NPDES-permitted wastewater facilities that discharge surface water within the watershed. Therefore, the $WLA_{wastewater}$ for the Lake Bonny TMDL is "not applicable" because there are no wastewater or industrial wastewater NPDES facilities that discharge directly to Lake Bonny."

Load Allocations (LAs)

Considerations:

- **The EPA regulations require that a TMDL include LAs, which identify the portion of the loading capacity allocated to existing and future nonpoint sources and to natural background [40 CFR §130.2(g)].** Load allocations may range from reasonably accurate estimates to gross allotments [40 CFR §130.2(g)]. Where it is possible to separate natural background from nonpoint sources, load allocations should be described separately for background and for nonpoint sources.

- **If the TMDL concludes that there are no nonpoint sources and/or natural background, or the TMDL recommends a zero load allocation, the LA must be expressed as zero.**

Conclusions:

The nonpoint sources received LAs to meet the TMDL. A 64 percent reduction is required from nonpoint sources in order to meet the TMDL of 0.89 mg/L annual geometric mean TN for Lake Bonny. A 60 percent reduction is required from nonpoint sources in order to meet the TMDL of 0.04 mg/L annual geometric mean TP for Lake Bonny.
"It should be noted that the load allocation includes loading from stormwater discharges that are not part of the NPDES Stormwater Program"

Margin of Safety (MOS)

Considerations:

- **The statute and regulations require that a TMDL include a margin of safety to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality [CWA §303(d)(1)(C), 40 CFR § 130.7(c)(1)].** EPA guidance explains that the MOS may be implicit, i.e. incorporated into the TMDL through conservative assumptions in the analysis, or explicit, i.e. expressed in the TMDL as loadings set aside for the MOS.

- **If the MOS is implicit, the conservative assumptions in the analysis that account for the MOS must be described. If the MOS is explicit, the loading set aside for the MOS must be identified.**

Conclusions:

An implicit margin of safety was used for this TMDL. Consistent with the recommendations of the Allocation Technical Advisory Committee (Florida Department of Environmental Protection, February 2001), an implicit margin of safety (MOS) was used in the development of these TMDLs because of the conservative assumptions that were applied. The TMDLs were developed using water quality results from both high and low rainfall years during a period when lake chlorophyll *a* concentrations tended to be inversely related to rainfall.

Seasonal Variation

Considerations:

- **The statute and regulations require that a TMDL be established with consideration of seasonal variations. The method chosen for considering seasonal variations in the TMDL must be described [CWA §303(d)(1)(C), 40 CFR §130.7(c)(1)].**

Conclusions:

The estimated assimilative capacity is based on annual conditions, rather than critical/seasonal conditions because (a) the methodology used to determine the assimilative capacity does not lend itself very well to short-term assessments, (b) the Department is generally more concerned with the net change in overall primary productivity in the segment, which is better addressed on an annual basis, and (c) the methodology used to determine impairment is based on annual conditions (annual geometric means or arithmetic means).

Public Participation

Considerations:

- **The EPA regulations require public review [40 CFR §130.7(c)(1)(ii), 40 CFR §25] consistent with State or Tribe's own continuing planning process and public participation requirements.** In guidance, the EPA has explained that final TMDLs submitted to EPA for review and approval must describe the State/Tribe's public participation process, including a summary of significant comments and the State/Tribe's responses to those comments.

Conclusions:

The State's public participation process is consistent with regulations. Accompanying the State's final TMDL for Peace River Basin Lake Nutrient TMDLs is a statement that " No formal public comments were received at the at the public workshop held on March 26, 2014,in Bartow, Florida on the draft nutrient TMDLs for Lake Bonny, Lake Hollingsworth, Lake Lena, and Deer Lake, located in the Peace River Basin. In addition, a 30 day comment period was provided to allow opportunity for the general public to submit written comments to the Department. No formal comments were received related to the establishment of the TMDLs as the site specific interpretation of the narrative nutrient criteria or on the TMDLs themselves"

Other Considerations

Considerations:

- This section may be needed in the TMDL review in order to describe unique factors or information specific to the TMDL under review, which help explain the basis for EPA's decision.

Conclusions:

N/A

Final Recommendation/Comments

Lake Bonny is expected to meet the applicable nutrient criteria and maintain its function and designated use as a Class III water when surface water TN and TP concentrations are reduced to the target concentration, which will address the anthropogenic contributions to the water quality impairment. The approach used to establish the nutrient target and the TMDL, addresses meeting the chlorophyll *a* target, which is protective of the lake's designated use.

The TMDL presented in this decision document will constitute the site specific numeric interpretation of the narrative nutrient criterion set forth in paragraph 62-302.530(47)(b), Florida Administrative Code (F.A.C.), that will replace the otherwise applicable numeric nutrient criteria (NNC) in subsection 62-302.531(2) for this particular water, pursuant to paragraph 62-302.531(2)(a), F.A.C.

The Water Quality Planning Branch recommends that the TMDL be **APPROVED**.